

CLAIMS

1. A surgical access valve adapted to receive an instrument and to form an instrument seal around the instrument, comprising:

a valve housing having an axis extending between a proximal end and a distal end;

5 a seal material disposed in the valve housing and forming a housing seal with the valve housing;

portions of the seal material defining an instrument channel through the seal material, the instrument channel being normally closed to inhibit fluid communication through the seal material; and

10 a dilator moveable distally to open at least partially the instrument channel thereby facilitating passage of the instrument through the seal material, and moveable proximally to facilitate formation of the instrument seal around the instrument.

2. The surgical access valve recited in Claim 1, wherein the dilator has a channel and is moveable axially between a proximal position and a distal position. The dilator in the distal position, being disposed in the instrument channel of the seal material with the lumen of the dilator extending at least
5 partially through the seal material.

3. The surgical access valve recited in Claim 2, further comprising:
means by biasing the dilator to the first position.
4. The surgical access valve recited in Claim 3, further comprising:
a retention element disposed between the dilator and the seal
housing, the retention element being operable to maintain the dilator in the
second position.
5. The surgical access valve recited in Claim 1, further comprising:
a thumb support coupled to the dilator; and
at least one finger tab coupled to the seal housing and movable
relative to the thumb support to facilitate single-handed movement of the dilator
5 from the proximal position to the distal position.
6. The surgical access valve recited in Claim 1, wherein the seal
material is a gel.
7. A surgical access valve, adapted to receive an elongate instrument
having a column strength, the valve comprising:
a valve housing having an axis extending between a proximal end
and a distal end;
5 a seal material disposed in the valve housing and including portions
defining a channel along the axis and through the seal material;

a dilator movable between a proximal position and a distal position;
the dilator in the proximal position being disposed along the axis of
the housing;

10 the dilator in the distal position being disposed distally axially of the
proximal position and extending at least partially into the channel; and

the dilator being adapted to receive the elongate instrument and to
increase the column strength of the instrument to facilitate passage of the
instrument through the seal material.

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8. The surgical access valve recited in Claim 7, wherein the dilator
comprises.

a tube defining a work channel having a width sufficiently narrow to
limit lateral binding of the instrument and thereby increases the column strength

5 of the instrument in the working channel.

9. The surgical access valve recited in Claim 8, wherein the working
channel of the dilator is sized and configured to receive the instrument in the
second position of the dilator.

10. The surgical access valve recited in Claim 7, wherein the seal
material has elastomeric properties.

11. The surgical access valve recited in Claim 10, wherein the seal material comprises a gel.

12. The surgical access valve recited in Claim 7, further comprising means for biasing the dilator to the proximal position.

13. The surgical access valve recited in Claim 12, further comprising means for releasably retaining the dilator in the distal position.

14. The surgical access valve recited in Claim 7, further comprising:
a thumb support coupled to the dilator; and
at least one finger tab coupled to the seal housing and movable relative to the thumb support to facilitate single-handed movement of the dilator
5 from the proximal position to the distal position.

15. A surgical access valve, comprising:
a valve housing having an axis extending between a proximal end and a distal end;
a seal material disposed in the valve housing and including portions
5 defining a channel through the seal material;
a dilator movable between a proximal position and a distal position;
the dilator in the proximal position being substantially removed from the seal material so that the channel has a first diameter;

the dilator in the second position providing at least portions of the
10 channel with a second diameter greater than the first diameter to facilitate
insertion of the instrument; and

a thumb support coupled to the dilator; and

at least one finger tab coupled to the seal housing and movable
relative to the thumb support to facilitate single-handed movement of the dilator
15 from the proximal position to the distal position.

16. The surgical access valve recited in Claim 15, wherein the first
diameter is substantially zero.

17. The surgical access device recited in Claim 15, further comprising:
a retention element disposed between the dilator and the valve
housing, the retention element being operable to selectively maintain the dilator
in the distal position.

18. The surgical access device recited in Claim 15, wherein the dilator
has a lumen adapted to receive the instrument in the distal position of the dilator.

19. The surgical access device recited in Claim 15, wherein the seal
material has elastomeric properties.

20. The surgical access device recited in Claim 19, wherein the seal material comprises a gel.

21. The surgical access device recited in Claim 15, wherein the dilator is biased to the proximal position.

22. The surgical access device recited in Claim 21, wherein the seal material is biased to the first diameter.

23. A surgical access valve adapted to receive an instrument and to form an instrument seal around the instrument; comprising:

a valve housing having an axis extending between a proximal end and a distal end;

5 a seal material forming a single valve in the valve housing;

portions of the seal material defining an instrument channel, the portions forming a zero seal in the absence of the instrument and the instrument seal in the presence of the instrument;

a dilator movable from a proximal position to a distal position
10 thereby enlarging at least a portion of the instrument channel to facilitate insertion of the instrument; and

the dilator being movable from the distal position to the proximal position to facilitate formation of the instrument seal between the seal material and the instrument.

24. The surgical access valve recited in Claim 23, wherein the seal material has elastomeric properties.

25. The surgical access valve recited in Claim 24, wherein the seal material is a gel.

26. The surgical access valve recited in Claim 23, further comprising:
means for biasing the dilator to the proximal position.

27. The surgical access valve recited in Claim 23, wherein the seal material is biased toward formation of the zero seal.

28. The surgical access valve recited in Claim 23, further comprising:
a retention mechanism disposed between the dilator and the valve housing.

29. The surgical access valve recited in Claim 23, further comprising:
a thumb support coupled to the dilator; and
at least one finger tab coupled to the seal housing and movable relative to the thumb support to facilitate single-handed movement of the dilator

5 from the proximal position to the distal position.

30. A method for operating a surgical access valve having a valve housing with an access extending between a proximal end and a distal end, comprising the steps of:

placing a seal material within the valve housing;

5 forming a housing seal between the valve housing and the seal material;

forming an instrument channel through the seal material, the instrument channel being normally closed to inhibit fluid communication through the instrument channel;

10 positioning a dilator relative to the seal material and the instrument channel;

moving the dilator at least partially into the instrument channel to facilitate placement of an instrument in the instrument channel; and

15 removing the dilator at least partially from the instrument channel to facilitate formation of an instrument seal between the seal material and the instrument.

31. The method recited in Claim 30, further comprising the step of:

providing the seal material with properties for biasing the instrument channel to a normally closed state.

32. The method recited in Claim 31, further comprising the step of:

biasing the dilator to facilitate the removing step.

33. The method recited in Claim 32, further comprising the steps of:
during the moving step, moving the dilator distally to an instrument
insertion position; and
releasably holding the dilator at the instrument insertion position.

34. The method recited in Claim 33, wherein the moving step
comprises the step of:
using only a single hand to move the dilator to the instrument
insertion position.